CDF Operations Report

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All Experimenters' Meeting

CDF's Fun Weekend

- Friday (5/21) afternoon .. waiting for stack to build up and Tevatron to go into Shot Setup.
- Main breaker for sub-circuits that run chilled water pumps trips. (CDF solenoid safety systems start slow dump and alarms start to sound. ("Twilight Zone" in the Control Room)
- Breaker (1000A, 440V) will reset but appears to be failing so we make decision to replace. Luckily Fess has not yet left for weekend and has a spare!
- Replacing breaker requires powering down building power so we turn off all entire detector electronics, all computers, lights, etc etc. Cryo stays up (so could have been worse).
- Two hours later the lights come back on and we start the painful process of resurrecting the detector. Twenty minutes into that process the tornado alarm sounds!
- An hour later we go back to work. MCR grants us a long access to work on some solenoid problems in collision hall.
- Many, many small problems such as crate power supply failures have to be dealt with.

CDF's Fun Weekend (cont'd)

- **Detector is more or less ready to roll about 0230 on Saturday.**
- **Saturday morning we have a large leak (small flood) in LCW system. Roser's plumbing company comes to rescue.**
- **Store 3528 goes in late Saturday and we take data with only minor problems (luminosity counter…).**
- **Store 3530 goes in on Sunday.**
- **Monday owl shift, bearings on purge fan for HVAC for collision hall go bad, start to smoke, and set off VESDA alarms. Fire department responds….**
- **Have just about covered all the bases. Rob Roser says we only needed an infestation of cicadas to complete the picture!!**
- **Work on HVAC fan for collision hall causes temperature instabilities in hall that give Tevatron some problems. System should be OK now but will need final repair later.**
- **Detector back to "normal"** (need an access to replace one electronics board and some fuses on silicon L00).

In the Dark (diesel generator powered circuits only)

In the Dark (comic relief)

Store Summary

Store	Start Date	Duration (hours)	Inst Lum Initial e30 cm-2 s-1	Int. Lum Delivered nb-1	Live Lum nb-1	Tevatron Terminate
3506	5/18	5.0	64.4	842	228 27%	Quench (cold comp)
3510	5/18	23.8	64.9	2,555	1692 66%	Abort on corrector trip
3513*	5/19	5.9	63.9	985	805 82%	Abort on corrector trip
3516*	5/20	16.5	51.9	1,524	990 65%	Planned OK
3528*	5/22	23.5	~50	2,029	1,554 77%	Planned OK
3530*	5/23	ongoing	68.4			
Total 3506-3528		74.6		7,935	5,269 66%	
FY2004 (3033 up)		2,305		181,690	144,815 80%	

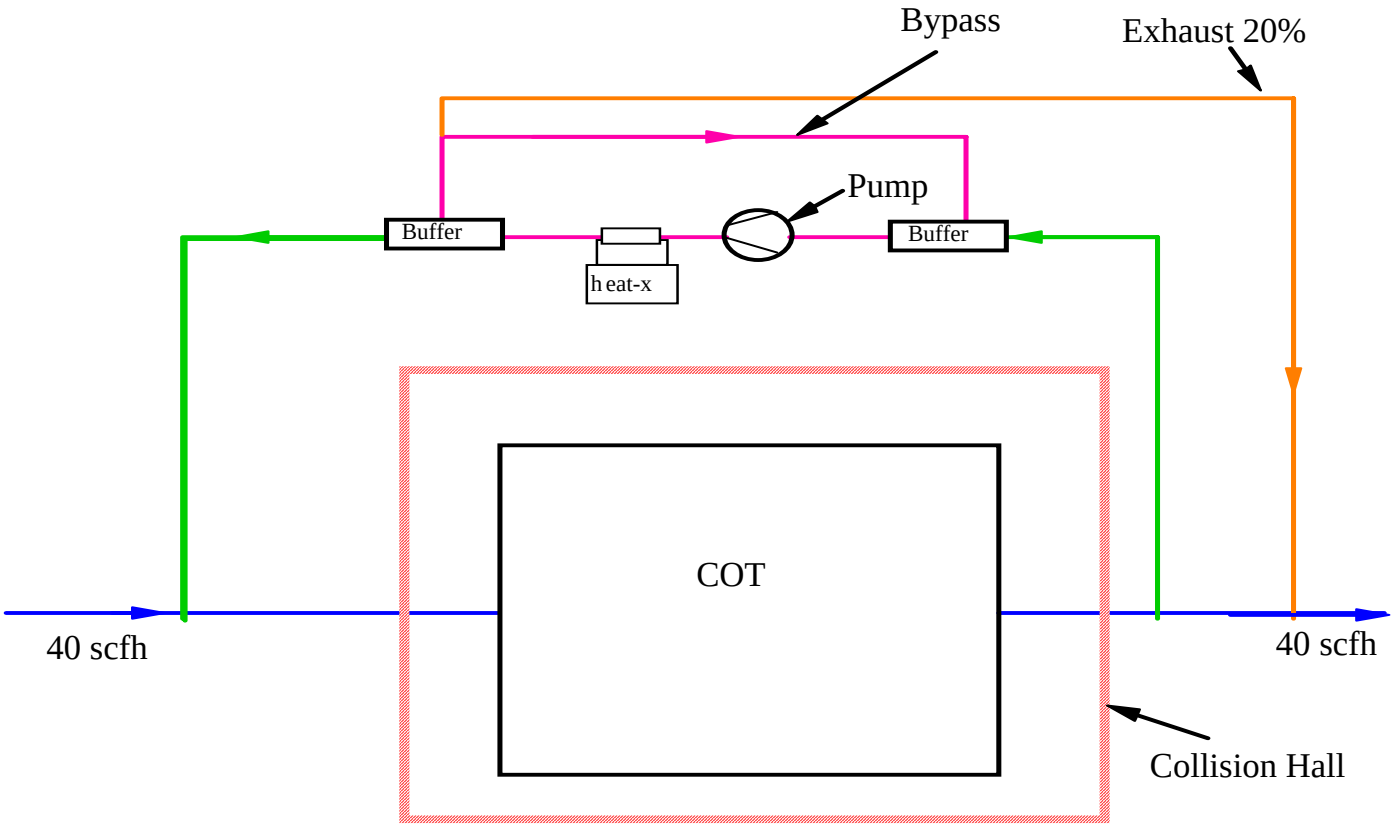
Extended History

(Efficiency is live lum. and "good lum. with silicon")

Store (Efficiency)	Date	COT	Silicon	Tevatron		
3494	5/15	Gas Rec. HV ON	ON	**Quench with rad abort**	30 min store	
3500 63%/0%	5/16	Gas Rec. HV ON	OFF (cautious)			
3504 78%/0%	5/16	OFF O2 in gas	OFF (COT OFF)			
3506 27%/0%	5/18	**Gas single HV protected**	OFF **(beam losses)**	**Corrector leads swapped**	Proton losses too high for wire chambers 3 hrs	
3510 66%/36%	5/18	**Gas single HV protected**	ON **(abort gap)**	**DAQ Issues**	COT gas rec. at EOS	
3513 82%/82%	5/19	Gas Rec. HV ON	ON			
3516 65%/0%	5/20	Gas Rec. HV ON	OFF **(abort gap)**	**Longitudinal damper**	Proton losses too high for wire chambers 3 hrs	
CHW Breaker failure, Detector Power Down/UP, Tornado, Related problems						
3528	5/22	Gas Rec. HV ON	ON			

Simplified COT Gas Recirculation Schematic

System to increase flow rate of COT gas from 40 scfh to 200 scfh is operational. COT HV on all superlayers is at nominal full HV. This system is one of several investigations to address COT wire chamber aging problem.



200 scfh System status

- Friday, 5/14, system operational
- Sunday, 5/16, O_2 level in gas jumps from 200 to 1000ppm
- Monday, 5/17, supervised access to hall to check system
- Checkout finished by Wednesday 5/19 and back in operation
- System now **much** tighter, O_2 **<20 ppm**
- Incident was possibly a result of control programming so we added more monitoring and data logging
- Main pump was problematic, recirculation varied between 70 and 150 scfh. Changed to correct pump oil today and finally running steadily at target 160 scfh.
- Need 4 - 5 Stores with COT at full voltage for definitive evaluation (so don't ask today!)

Triple Diaphragm Pump